



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

*MC*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,513	10/06/2000	Takahiro Horikoshi	198322US2CONT	9594

22850 7590 05/17/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VA 22202

EXAMINER


BROWN, KHALED

ART UNIT PAPER NUMBER

2851

DATE MAILED: 05/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/680,513	Applicant(s) HORIKOSHI ET AL.	
	Examiner Khaled Brown	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,14-24,28-35,40-42,44-46 and 49-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,14-24,28-35,40-42,44-46,49-63,66 and 67 is/are rejected.
- 7) ☒ Claim(s) 64,65 and 68 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

Claims 1,4,5,6,49,59 and 60 are objected to because of the following informalities:

Claim 1, line 6 and Claim 6, line 6 the phrase "between a position of photodetecting" is not clear. The phrase "between a position of a photodetector" or "between a position at which photodetecting" might be used .

Claims 4,5,49,59 and 60 depend from claim 1 and thus contain the same deficiencies.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1,4,5,6,49,59 and 60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said optical system" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation " said optical system " in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 59 recites the limitation "optical system" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claims 4,5,49 and 60 depend from claims 1 and 6 respectively and thus contain the same deficiencies.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,4-6,14-24,28-35,40-42,44-46, 49-63,66 and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Taniguchi (US 5721608).

Re clm 1,4,5,49: Taniguchi discloses an exposure method (Col 13-20) performed by an exposure apparatus to transfer a pattern illuminated with exposure light from a light source onto a substrate, said method comprising: photodetecting a part of said exposure light (Col 13 lines 62-63) in an optical path of said exposure light (IL); setting a time interval (Col 14 line 9) for measurement of a transmittance of said optical system (R, PL) which is arranged between a position of photodetecting (28) a part of said exposure light and said substrate (W) in accordance with changes in exposure conditions; measuring a transmittance (Col 13 line 51) of said optical system at said set time interval for measurement; setting an exposure amount control target value (Col 24 line 37) in accordance with said measured transmittance of said optical system; and transferring said pattern onto said substrate (Col 6 line 5-10) through said optical

Art Unit: 2851

system, while an exposure amount is controlled (Col 14 lines 58-67) based on photodetection results of a part of said exposure light and said set exposure amount control target value.

Re clm 59: exposure light is branched (26)

Re clm 6: Taniguchi discloses photodetecting a part of said exposure light (Col 13 lines 62-63) in an optical path of said exposure light; setting a time interval (Col 14 line 9) for measurement of a transmittance of said optical system (R, PL) which is arranged between a position of photodetecting (28) a part of said exposure light and said substrate (W) in accordance with a variation amount of a transmittance (Col 18 lines 29-37) of said optical system; setting an exposure amount (Col 18 line 30) control target value in accordance with said measured transmittance of said optical system at said set time interval for measurement; and transferring said pattern onto said substrate (Col 6 line 5-10) through said optical system, while an exposure amount is controlled based on photodetection results of a part of said exposure light and said set exposure amount control target value.

Re clm 60: variation amount is calculated (Col 18 lines 11-16)

Re clms 14,15,22,23,50,53: Taniguchi discloses setting a time interval for measurement in accordance with each of at least two exposure conditions (Transmittance and Reflectance Col 18 lines 15); and measuring a variation in the amount of said exposure light which passes through said optical system and reaches onto said substrate at said set time interval for measurement (Col 18 lines 54-66).

Art Unit: 2851

Re clm 16,51,34: Taniguchi discloses measuring a variation in the amount of said exposure light passing through said optical system in a predetermined time interval for measurement; and changing said predetermined time interval for measurement upon said measuring, in accordance with a comparison result of a variation of a first measurement of said light amount and a variation of a second measurement of said light amount (Col 18 lines 12-17).

Re clm 17,30: measurement prior to exposure (Col 13 line 55)

Re clm 18,31: measurement after to exposure (Col 15 line 23-33)

Re clm 19,20,21,45,52,58,63: a self cleaning (inherently occurs when transmittance measurement is made prior to exposure of a wafer) , device manufactured (W) and a prediction function (Col 14 line 55) is disclosed.

Re clm 66: correcting said transmittance time-varying prediction function (Col 14 line 48)

Re clm 67: precision (Col 24 line 37)

Re clm 62: light intensity (Col 13 line 39)

Re clm 24,35, 42,44,46,54,55,57: a branch optical system is disclosed (7a, 7b), a measurement/control unit (100),.

Re clm 40,41: mask stage (12), substrate stage (17), illumination optical system (10), projection optical system (R, pl), and drive unit (18)

Re clm 32, 33,61: first sensor (28), second sensor(41), transmittance/control unit (100)

Re clm 28: reading unit (28)

Re clm 29: a control unit (100), an exposure amount setting unit (1), an exposure amount control system (29) are disclosed.

***Allowable Subject Matter***

Claims 64,65 and 68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 1,4-6,14-24,28-35,40-42,44-46 and 49-68 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khaled Brown whose telephone number is 703-306-5738. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell E. Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

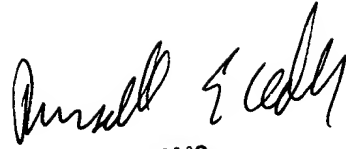
Application/Control Number: 09/680,513

Page 7

Art Unit: 2851

KB

May 15, 2002

  
RUSSELL ADAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800